

# AMERICAN FRUIT GROWER

VOLUME 52

JULY-AUGUST, 1932

NUMBER 6

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## AMERICAN FRUIT GROWER

(Title Registered in U. S. Patent Office.)  
Published Monthly, September to April, Bimonthly  
May-June, July-August by

**INTERNATIONAL TRADE PRESS, INC.**  
1105 Merchandise Mart, **Chicago** (222 North Bank Drive)

### SUBSCRIPTION RATES

Domestic (except Chicago) 3 years \$1.00, 1 year 50c.  
Chicago and Foreign (except Canada) \$1.00 per year.  
Canada (including tax) \$1.50 per year.

Entered as second class matter January 22, 1931, at the  
Post Office at Chicago, Ill., under act of March 3, 1879.  
Application made for additional entry at Waverly, Iowa.

Member Audit Bureau of Circulations.

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# Control of Soil Erosion in Young Orchards

By J. E. RUTTER

**I**T IS NOT at all unusual to see the ill effects of soil erosion in many young orchards. Excessive rainfalls cause a large amount of washing on steep hillsides. However, erosion is also often caused by a lack of fertility or improper handling of the soil. Steep hill land soils of any type wash more readily than those of level to undulating topography. However, in Missouri as well

Winter, or hairy vetch, is an example of a legume that will do well on acid soils of moderate fertility. It is also a crop to be seeded in the fall. There is some question, however, as to whether vetch will survive the winters much farther north than Central Missouri. The plant is very popular as a green manure crop in Kansas. Rye is often seeded with vetch, and the combination proves satisfactory only when the crop is to be cut for hay or seed. Approximately twice as much growth is produced by the vetch when it is seeded alone.



as in other sections, the best orchards are located along the river hill loess deposits. These sections are very hilly and wash easily. Also the orchards that are located on soil in the thin Ozark upland regions are very subject to erosion. As cultivation must be practiced in the majority of young orchards, the control of erosion is of foremost importance to all fruit growers. The lack of organic matter, or humus, in thin soil presents an ideal condition for erosion because there is nothing in the soil to hold the particles intact. Also, soils containing large amounts of coarse material, such as sand, wash readily.

Cultivation of young orchards is the most satisfactory and economical method of obtaining sufficient growth of the young trees. However, in orchards which are not cultivated, erosion is more easily controlled. In the latter case, a sod mulch system, including manure and nitrogenous fertilizer should be used. Many growers plow, disk and cultivate their orchards properly during the summer months but they neglect to sow a winter cover crop and thereby lose through winter erosion much of the fertility gained during the summer.

If the cultivation system of orchard management is to be followed, a crop must be seeded in the fall to prevent winter and spring erosion. A legume plant is preferred because it will not only add humus and organic matter to the soil, but will collect free nitrogen from the air and make it available for plant growth.

Above—Land with a crop of organic matter such as this turned under will not wash. Photo taken in the McGenie Orchards, Neesho, Missouri, on May 20. Below—A crop of vetch being turned under that is equal in fertilizing value to 22 tons of manure per acre.



May, leaving a six-foot strip in the center for reseeding. The seed produced on this strip will be matured in late August and by harrowing the ground thoroughly, approximately a bushel of seed per acre will be scattered over the ground. When this system is followed, one seeding may last indefinitely and the cost of the crop is insignificant. On thin land, 200 to 400 pounds of superphosphate fertilizer may be added with profitable results.

Rye is probably the best non-legume green manure crop we have at the present

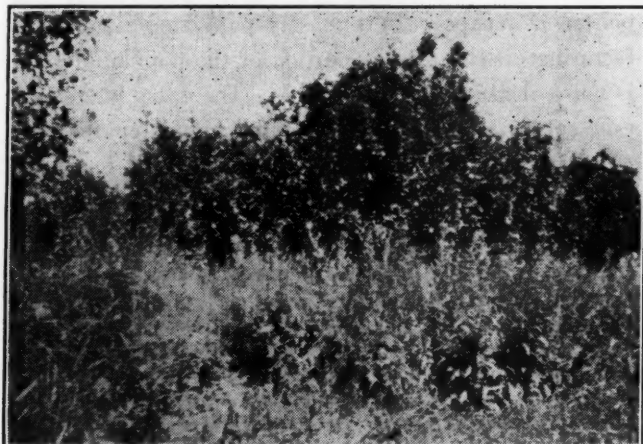
(Turn to page 13)

# Green Manuring in Orchard Practice

By R. E. STEPHENSON

**N**O SOIL long remains highly fertile unless organic matter is maintained, and in no type of farming is organic matter of greater significance than in orchard production. With depletion of organic matter the soil loses its structure, runs together, and sometimes bakes and packs until tillage is difficult. Such a soil becomes lifeless and unsuited to plant growth.

To supply organic matter under orchard practice stable manure may be



At right—Malva, a weed, four feet high in an orange grove. Ready to plow down March 1.  
Left—Mustard two and one-half feet high in an orange grove. Ready to plow down March 15.



used, but manure is becoming scarce and more expensive. Green manure is a highly satisfactory supplement and substitute for stable manure. The crop for green manuring can be inexpensively produced and at a time when it in no way competes with the trees for fertility or soil moisture. Sometimes weeds such as malva and fenu-greek, which make quite a vigorous volunteer growth, serve as a very satisfactory green manure.

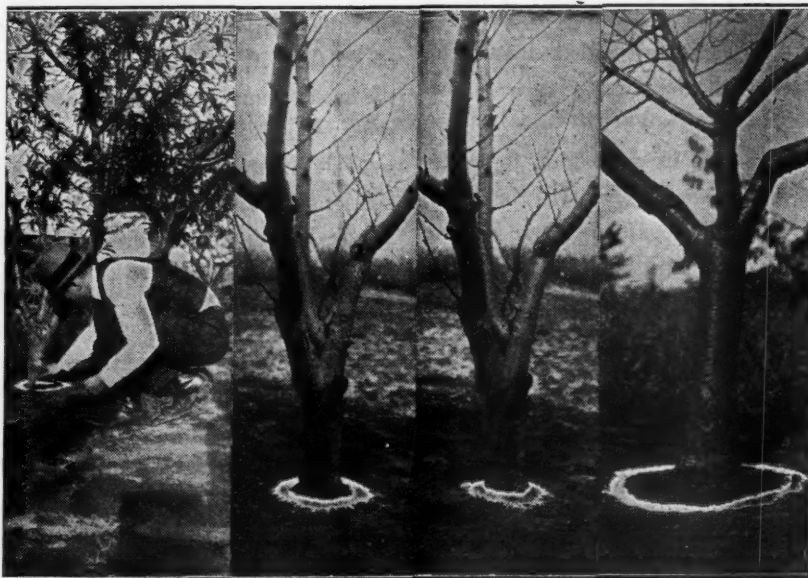
The legumes are most favored for green manuring because they are able to take some of their nitrogen from the air. When plowed under, the legume nitrifies readily and produces abundant nitrates to support tree growth. Vetch is more universally used than any other crop. Sometimes it is used in combination with oats or rye very satisfactorily. Sweet clover is a good soil building legume but is a little slow in growth for use in orchard practice. Crimson

clover is good wherever the climate is favorable to it.

But some non-legumes are highly favored. The citrus experiment station in California is recommending a trial of mustard, because it grows a heavy tonnage quickly. Two varieties are favored, the common kind from which table mustard is made, and a variety known as Trieste, which makes a big tonnage but grows a little more slowly. A growth of 10 tons or more per acre can be produced in 90 days, and the seed is inexpensive. The mustard is rich in nitrogen, showing about 10 pounds per ton of green weight. In Oregon, rape is favored for test purposes, because of its heavy tonnage and high nitrogen content.

While such non-legumes do not take any nitrogen from the air, their nitrification as a green manure probably liberates a greater amount of nitrate to the use of the tree than is ordinarily obtained from the use of a legume, because the tonnage is so much greater. And

## Applying "P.D.B." for Peach Borer Control



Reading from left to right: (1) Applying paradichlorobenzene with a handy cone-shaped container that holds exactly one ounce. (2) The ring of crystals should be about one and one-half inches from the tree trunk. (3) If the chemical is placed against or close to the tree trunk, severe injury may result. (4) In this case the crystal ring is too far from the tree trunk for effective results.

though the non-legume takes its nitrogen from the soil, it is done at a season when the tree is not making use of nitrates. The growth of a cover crop, therefore, becomes a means of saving what would otherwise be lost. It is common belief that the loss of nitrate from a bare soil is fully equivalent to the amount used by a growing crop.

But when a good tonnage of legumes can be

## EDITORIAL PAGE

### *Meeting the Depression*

SOME MEASURE of apology or at least of explanation is due to our readers in view of the reduction in size of AMERICAN FRUIT GROWER to sixteen pages as at present. The unusual conditions now prevailing in the world have affected every class of industry and especially, it seems, the publishing business. For in line of periodical publication nothing has as yet come down except the internal salaries, which form but a small cost of publication, and the price of paper. The typographical union, faced with unemployment of more than half its membership, has succeeded to a large extent in maintaining the "stagger" system of employment without reduction in the wage scale. Thus printing costs are still as high as in 1929. Second class postage rates have been increased.

In ordinary seasons the large issues of winter and spring may be depended upon to create a sufficient surplus to pay off any loans engaged during the latter part of the previous season and to carry the publication well through the early summer months. It is not unusual for publishers to borrow money toward fall to carry the lighter issues up to winter. This year, however, conditions have been radically different. A substantial reduction in advertising rates last January, after advertising schedules had been placed, materially reduced income without increasing the volume of advertising. It is now difficult to borrow money for any purpose except to finance a business which can show a profit from month to month. It may be necessary, therefore, to carry this rather drastic reduction in size through the remaining issues of the year.

We expect shortly to be in a position to make an announcement which we believe will be most pleasing to our readers regarding the service AMERICAN FRUIT GROWER will be able to supply them beginning with the issue of January, 1933. There is a possibility we may be able to make this announcement in the next issue.

---

### *Fruit Grower Organization*

THE GENERAL feeling of approval among commercial fruit growers of the organization of the Apple Growers' Council is a hopeful sign

for the deciduous fruit industry, although the present plans of the organization, it seems, contemplate work in the interest of the apple only for the present at least.

This organization if properly financed can serve many useful purposes in the fostering and protection of the growers' interests. We are reminded of the possibilities by a clipping taken from a metropolitan newspaper. In a densely populated manufacturing district a large portion of the population is now subsisting on relief funds. The dairy interests, co-operating with health authorities, prepared and gave wide distribution to a weekly food budget designed to feed a family of five on \$5.00 per week. Among dairy products were included 22 quarts of milk for the week, almost one-half of the budget, while among fruits the budget recommended "three No. 2 cans, three pounds apples, or oranges, if cheap."

It is manifest that in the preparation of dietary budgets of this kind the voice of the fruit industry should be heard. This can be accomplished only through some organization authorized to speak for the growers.

Manifestly, there is expense attached to work of this kind which growers should prepare to meet, after they in their meetings have made a thorough study of various methods suggested.

If the growers are invited to discuss and to assist in the formulation of plans, it is more likely that they will feel free to support the plans financially than if, as has not infrequently been done in the past, plans are laid by a small group of men, however able, and handed to the growers for approval. In the past the growers usually passed resolutions of approval and proceeded to forget the matter before returning to their homes.

Other lines of agriculture are doing effective work toward increasing market receptivity for their products, and unless the fruit industry shortly exhibits some activity in this respect we may expect to find increases in consumption of other lines of farm products at the expense of fruits. This would not be desirable from a standpoint of national health, and would assuredly add nothing to the well-being of the fruit industry.

# Apple and Peach Prospects

By S. R. NEWELL

Fruit production in 1932 gives promise of being somewhat below average for the United States as a whole. Broadly speaking, the spring weather was not favorable. The late frosts in the South cut the early peach crop severely and damaged peaches and other fruits to more or less extent in nearly all areas east of the Rocky Mountains. The western states, for the most part, expect production of apples, peaches, pears and grapes to exceed the average production for the five years 1924 to 1928.

In years of light fruit crops it is not unusual for spraying to be neglected. This year comments indicate that many fruit sections are going to be forced to curtail spraying even more than usual because funds are lacking to follow out a complete program. If this is the case, it would seem that those producers who can follow out a complete and thorough program of spraying, and produce high quality fruit, will find it to their advantage.

The 1932 apple crop is indicated on July 1 at 133,824,000 bushels or about 34 per cent less than the large 1931 crop. In the eastern and central states the late spring freezes caused some setback to the crop, while insects and disease are causing further damage in some sections.

In New England, there is promise of less than an average crop but somewhat larger than in 1931, when a short crop was produced. Cold weather caused material damage in some sections and the dry June encouraged a heavy drop.

The most striking feature in the New York situation is the light bloom and poor set of Baldwins, which are estimated at about 25 per cent of a full crop. Other varieties in the state are excellent, Greenings and McIntosh both promising rather heavy crops. Conditions in the Hudson and Champlain valleys are better than elsewhere in the state.

In Pennsylvania the spring freezes damaged some sections; pollination was poor in many orchards and this is an "off-year" for some varieties, especially Baldwin. The June drop was heavy and in some sections of the Cumberland-Shenandoah region scab is reported bad. There is prospect of about half a crop of early varieties. Rome Beauties are placed at about 60 per cent of a full crop, Yorks at 33 per cent, Baldwins at 25 per cent and other late varieties at around 50 per cent.

In the adjoining section of Maryland (Washington county) condition is reported at 47 per cent. The June drop was heavy. Growers are making a special effort to produce high quality fruit, in spite of some difficulty in following out their usual spraying program. West Virginia likewise reports a heavy June drop.

The condition of apples in Virginia declined during June due to the heavy June drop and unusually severe scab damage. Tent caterpillars have entirely defoliated unsprayed orchards. In the valley there is heavy scab infestation. In the Piedmont,

scab is likewise present but is not expected to result in as much damage as in the valley.

Michigan and Illinois both report light crops in prospect, as a result of the heavy crops last year, frost damage in the late spring and wet weather at pollination time. Spraying has been reduced in many orchards with the result that only the better-

cared-for orchards are escaping the ravages of scab, codling moth and curculio.

Both Missouri and Arkansas expect short apple crops in 1932. Though the crop in both states was large in 1931 and a somewhat smaller crop this year might have been expected, the late spring freeze did much to further reduce prospects. Dry

(To Page 12)



## "We start threshing tomorrow"

THE MACHINE was all set and ready for tomorrow's run. And now the farmer had only to round up the threshing gang previously arranged for. He spent a short half-hour at the telephone after supper, calling this neighbor and that one. Some he asked to bring only a pitch fork. Others were asked to bring a rack.

Bright and early tomorrow they will be coming—across the fields—around the roads. A little later this farm will be alive with the excitement of a threshing gang. And the farmer made up this party over the telephone.

Over the telephone—that is the way a great deal of farm business is transacted. Miles are covered in a few minutes. The time saved is money made. Most important of all, probably, are the telephone messages which inform the farmer about prices for livestock and produce. Every day the telephone is indispensable to the farm. The cost is small for value received.

A BELL SYSTEM

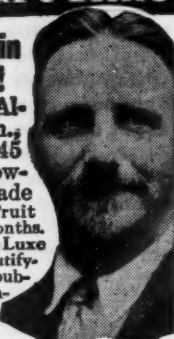


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## Questions and Comment

CONDUCTED BY T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 3c stamped envelope (air mail 8c). Address AMERICAN FRUIT GROWER, Merchandise Mart, Chicago.

### Increasing Color on Apples

We have an orchard of 20-year-old Winter Banana apple trees which has been under clean cultivation for two years. As fertilizer we have applied five to six pounds nitrate of soda per tree. We have always taken off a large crop of high quality fruit. However, during the past two seasons the fruit has lacked a sufficient amount of color. The trees have always received timely and thorough spraying. Can you suggest some means of checking the decrease in color and promoting a greater amount?—S. K., Ohio.

In all probability the best procedure to adopt in increasing the color of the fruit of your Winter Banana apple trees would be through judicious pruning and through a slowing up of growth.

The pruning may be accomplished by thinning out the branches in the thick portions of the tree top where it will not be necessary to remove large branches. By withholding fertilizers and cultivation, the growth of the trees may be checked and by so doing there will be less shoot growth and leaf growth which may tend to shade the fruits.

### Topworking Peach Trees

I have 800 peach trees of a variety I do not care to keep. They are a mixture of a Golden eling and an Indian blood freestone. About 300 is all I care to keep of this variety. They are not what I ordered.

I have 500 Hale peaches that are in a low place and of course do not do so well. I think that I will pull them out.

Now the point is this: Can I dehorn the variety that I do not care to keep and graft the Hale to them with any kind of success?

Kindly give me this information, stating when to commence and how to proceed, tools to use, etc.

The trees are five years old. Would it be advisable?—J. P., Illinois.

If the 800 peach trees of the variety which you do not care to keep are likely to prove unprofitable, it would not be advisable to attempt to topwork the variety to the J. H. Hale. This is true because topworking, which should consist of budding the new growth after the tops have been cut back, might not prove as successful as you anticipate unless properly done by one with experience.

If you do decide to topwork, however, it would be well to dehorn the trees as you have suggested and allow new growth to come from the stubs or branches left. These may be thinned as desired and the new branches may be budded to the variety desired during August. The shield bud method should be employed. This is the kind of budding used in the regular propagation of stone fruits in our larger nurseries.

After the bud is inserted and tied with a string, nothing more is done to it, ex-

cept that the string is cut on the opposite side in about a week or 10 days, until the following spring when the top is removed just above the bud after growth starts. The inserted bud, therefore, of the previous summer is forced by keeping the sprouts that arise from below and around the inserted bud removed. In topworking trees of the age which you describe it would perhaps be necessary to bud some two or three new branches on each arm,

### Water Core

Can you tell me any way to prevent my Delicious apples from having watery core or sometimes watery streaks running through them?—C. H. G., Massachusetts.

Some varieties of apples are much more susceptible to the condition known as water core than others; for example, the Early Harvest, Yellow Transparent, Rambo, Tompkin's King, and others are generally much more susceptible to the malady than the Delicious.

It seems certain that water core is not due to an attack of fungi, bacteria, or insects. Conditions affecting transpiration are generally considered of greatest importance in inducing water core. Moreover, it is believed that there is no one factor which may be entirely responsible for the disease. The best evidence seems to show that two or more causes are generally necessary.

No one has yet found a method of wholly preventing water core. The nutritional condition of the tree, the rainfall, cultivation, fertilization, and other factors may play an important role.

It is advisable to practice the best known methods of orcharding and to pick the fruit as near the proper time as possible, considering its maturity, color, and size. Furthermore, the fruit should be handled carefully and placed in clean, cool storage at the earliest possible date after harvesting.

### Storage Scald

What is the cause and prevention of scald of apples in ventilated storage house where the temperature has not been below 34 degrees or above 40 degrees, except for two short periods above 40 degrees?—L. H. R., Ohio.

Investigations have shown generally that oil wraps or shredded oil paper used in packing apples may prevent scald to a considerable degree. It has been generally shown, also, that when the apples are picked at the proper time and rushed to cool, clean proper storage there is less likelihood of injury by this malady.

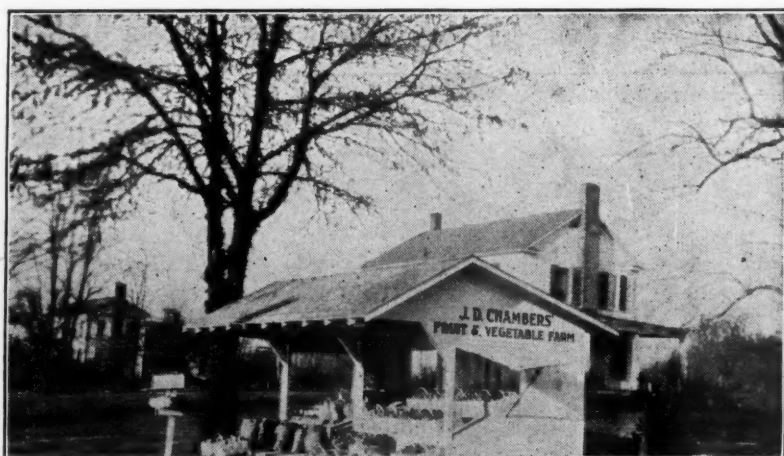
It is true, also, that some varieties are much more susceptible to scald than others and for these sorts with which we have had trouble it would seem advisable to use oil wraps or shredded oil paper for storage purposes, particularly where the storage is for any considerable length of time.

## PEACH GROWING

The peach is a rainbow of hope against a dark storm cloud. Anybody with a peach orchard, a pencil and a scratch pad can sit down in January and become a millionaire in from eight to seventeen minutes. As a matter of fact, he can make a most conservative estimate of yield and prices, divide the result by two and still be able to build a fine home, buy three ooka-ooka motor cars, acquire a family tree and a snooty air, make mouths at the banker, and look the whole world in the face and tell it to go where it so fast is going anyway. Then come those rare days in June and things begin to happen. If the brown rot, the curculio or some other remarkably efficient, high-powered, double-acting, automatic, free-wheeling, self-starting insect doesn't ruin the crop, or even if a drought or hailstorm doesn't cut the yield from 56 to 93 per cent, the government inspectors, the commission men and the freight rates will put the grower in the red in spite of youknowwhat and high water.

Along in August when the peach grower gets a bill for haulage to the dumping ground of his last consigned car of peaches, he sits down to his subtracting machine and figures up his losses, without including any overhead, salary to himself, depreciation, taxes or obsolescence. Then he feebly raises his right hand and swears that come January he will pull up those trees and plant the land in wheat, corn, potatoes, sorghum, or even cotton the next year. But will he? He will not! Next January you will see him figuring on the back of an envelope with a stubby pencil and smiling blandly and broadly to himself. He lets bygones be bygones, and leaves the dead past to bury itself. Except during the late summer and early fall months, he is the incurable and irrepressible optimist. Irrespective of the number of times fate kicks him in the pants, he forever responds to the lure of the pot of gold at the end of the rainbow, and simply never can remember about that dark storm cloud.—Olin Miller in *Thomaston, Ga., Times*.

## NEAT ROAD STAND OF OHIO READER



I am enclosing a picture of my roadside stand and thought you could use it in your publication.

Although this has been a poor year to sell produce, this stand sold over 3,000 bushels of apples, 1,100 bushels of potatoes, 1,200 pounds of honey, besides many gallons of cider, 800 bushels of peaches, also eggs. On big days we display 50 bushels of fruits and vegetables.

This stand is on the Cleveland-Columbus highway and is open seven days a week and most of the winter. When it is too cold to operate the stand, we use our storage, which is just back of the stand.

The square baskets which we use hold one bushel and fit easily through the automobile doors. They also slide in between the seats, which the round bushel baskets will not do.—J. D. Chambers, Ohio.

## Reduction in Pennsylvania Farm Apple Trees

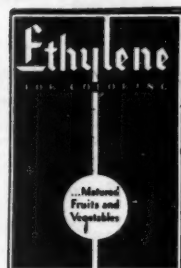
The number of Pennsylvania farms reporting apple trees dropped from 180,157 in 1925 to 125,766 in 1930, according to Pennsylvania Department of Agriculture, which says that there are now 11 counties in each of which there are less than 5,000 non-bearing apple trees. Apple production in Pennsylvania has become a highly-specialized commercial undertaking with the industry concentrated in a relatively small area of the state, one-fourth of all the apple trees in the commonwealth being located

in six counties—Adams, Berks, Bedford, Cumberland, Franklin and York.

The Department of Agriculture is authority for the statement that the United States produces one-third of all the apples grown in the world, estimated at 550,000,000 bushels per year. France leads in per capita consumption of apples, with 60 pounds a year. Germany is second with 52.7 pounds, followed by the United States with 51.6 pounds per capita.

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### Texas Citrus Growers Plan Advertising Campaign

Texas citrus fruit growers have appropriated \$2,000,000 to advertise Texas fruit, according to John H. Shary, president of the Texas Citrus Fruit Growers Exchange. The advertising program will be conducted through the Associated Shippers of America, an organization which is affiliated with a number of sectional citrus growers associations and of which Mr. Shary is head.

## PAPER LINERS REDUCE TRANSIT INJURY

One type of transit injury to boxed apples shipped by rail can be prevented for the most part if shippers will use corrugated paper liners in the boxes, the Bureau of Plant Industry of the United States Department of Agriculture has found after many experiments.

This injury consists of firm, dark, flattened areas on the lower side of the bottom layer of apples in the boxes which rest on their sides on the floor boards of a railroad car. There is usually a water-soaked or browned region beneath this flattened area which extends in the shape of a cone toward the core of the apple.

This injury resembles the condition sometimes seen at the bottom of the floor boxes, in apples that have been frozen, and is frequently thought to have been caused by freezing. Its occurrence under

conditions where freezing could not possibly have occurred prompted the bureau to investigate. In experiments railway transit conditions, including the joltings, were produced in the laboratory while the temperature was controlled. The results of these tests showed that typical transit injury can be produced in apples at temperatures where no freezing occurs. Freezing may make the injury worse but is not the cause of it, the bureau says.

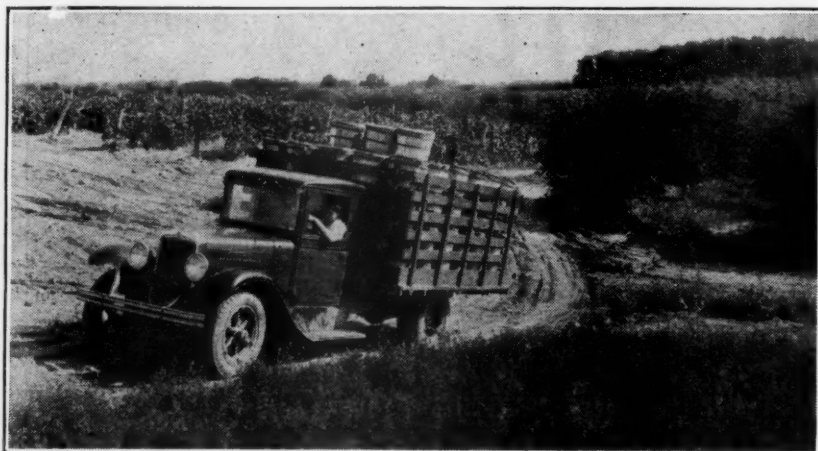
The damage has been prevented almost entirely—both experimentally and under actual transit conditions—by placing corrugated paper liners between the fruit and the sides of the box. The use of resilient paper liners was the only method that gave uniformly satisfactory results although several other methods were tried.

## MOTOR TRUCKS SPEED FRUIT TO MARKET

As soon as producers of the more perishable fruits such as grapes, pears, peaches, and berries get their crops picked and crated, their one big thought is to ship these crops to best-paying markets in the shortest possible time. To speed the movement of these fruits, modern-day motor

brought to Boston, some 800 miles away.

Motor trucks are especially important in speeding the movement of fruit out of the famous Benton Harbor district in southwestern Michigan. In the accompanying illustration is shown a typical scene in this region at harvest time. A six-speed one



trucks are quite generally being used by commercial growers and frequently trips of hundreds of miles are being made to reach profit-paying markets. Berries, for example, are regularly being brought by truck from North Carolina to New York, a distance of some 600 miles, and they are also

and one-half ton motor truck owned by Friday Brothers of Coloma, Berrien county, Michigan, is shown moving a big load of peaches directly from their orchards. These men own two trucks of the type shown and they have 1,000 acres in peaches, apples, grapes and cherries.

## How to Manage the Orchard

The ABC's of orchard management, ranging all the way from advice on things to be considered in the selection of the site to measures for protecting the orchard against rabbits and mice, are fully set forth in a circular now available at the New York State Experiment Station at Geneva. A copy of the pamphlet may be obtained free of charge upon request to the station.

All of the tree fruits are dealt with, including apples, cherries, peaches, pears, plums and quinces. Information is pre-

sented on setting out the orchard, cultivation and fertilizers, pruning, the control of insect pests and diseases, pollination, and miscellaneous problems that confront the fruit grower, such as thinning, grafting, etc.

An important part of the circular are the approved spray schedules for all of the tree fruits. These are given in full and show the proper time of application, the correct formula of spray or dust to use, and the insect pests and diseases that can be effectively combated by various treatments.

## Prune Dewberry Canes to Control Plant Disease

Those who have commercial fields of dewberries will find it profitable to cut the old canes after harvest so that a new set may be grown for the next season.

"Summer pruning of Lucretia dewberries should be completed as soon as possible after harvest," says C. F. Williams, associate horticulturist at North Carolina State College. "Cut off all the canes just below the surface of the ground leaving no stubs or spurs. Avoid injuring the crown and root system as far as possible and do not pull the roots loose from the soil. Finally, destroy all the canes by burning. Studies which we have made at the Agricultural Experiment Station show that this kind of treatment will control cane blight which is one of the most serious diseases of dewberries."

Mr. Williams says low pruning has increased the number of canes that have remained alive through the next harvest and has resulted in the average yield being raised as much as 50 per cent over average field practices.

The destruction of all removed top-growth, including the leaves, after pruning also aids in reducing anthracnose and other cane and leaf diseases.

## War on Grasshoppers

A manufacturer of dusting equipment has recently designed and built a grasshopper and insect exterminator. This machine is sturdily built and is compact and of a practical size. A portable mixing plant is an accessory to this grasshopper exterminator, which produces the proper lumpless mixture of mash. The machine is said to be the most practical implement so far produced for successfully combating crop-destroying grasshoppers and will handle any type of insecticide in dust or wet mash form.

The unit consists of a small motor, hopper, fan and nozzle assembled on a removable chassis, mounted on a four-wheel steel truck. The mixed mash is dumped into the hopper, the motor started, adjusting lever is set, and the blower sends the mash over the field in a steady and evenly-distributed stream as the machine moves along. An adjusting lever is provided which can be set so an even distribution of any quantity of poison mash per acre is obtained. The hopper has a capacity of three and one-half bushels or from 160 to 200 pounds of mixed mash. The nozzle directs the distribution of the mash as desired, either for complete coverage, in strips or rows, or on either side.

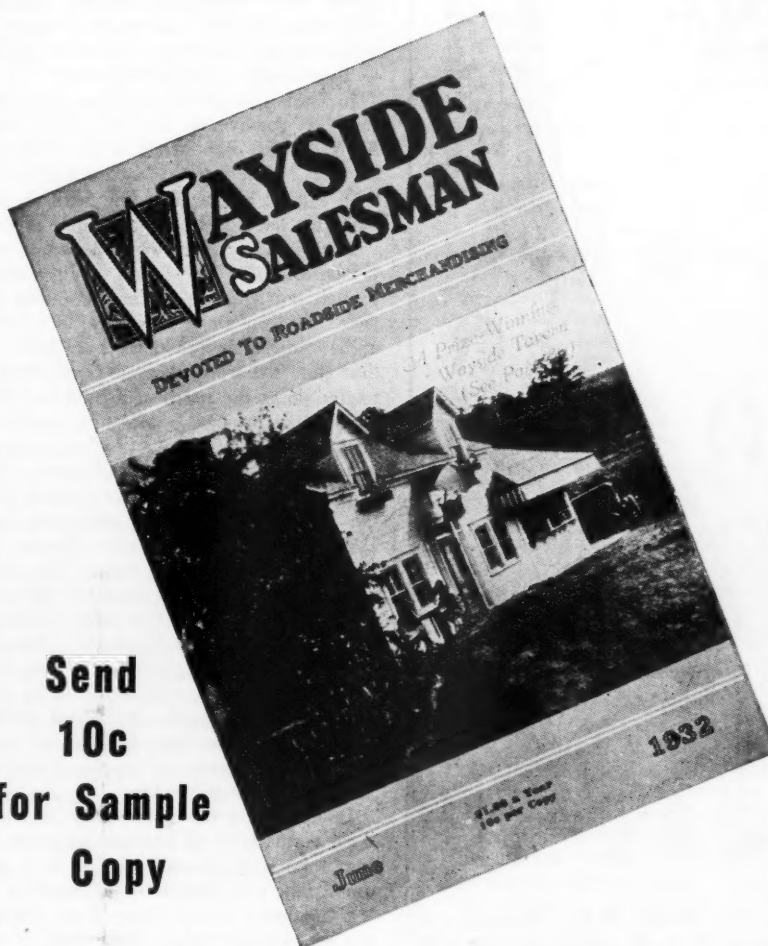
Heating perishable fruits and vegetables in refrigerator cars according to the temperatures within the cars, instead of following the common practice of heating them according to the outside temperatures, may result in substantial savings to shippers and in better maintenance of the keeping quality of the fruit, according to the United States Bureau of Plant Industry which has been making experiments in this field.

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## Apple and Peach Prospects

(From Page 7)

weather during June accentuated the drop of fruit. With the light crop in prospect, spraying is being neglected in many orchards and worms are taking a heavy toll. The Arkansas condition is spotted. Some orchards have good crops in prospect.

In Colorado the crop is indicated at 1,961,000 bushels, as compared with 2,000 produced in 1931. The June drop was heavy with widespread damage resulting from twig blight and codling moth in Delta county. Spraying has been neglected as a result of lack of financing.

In Utah the principal commercial areas have a good crop in prospect following the 1931 crop which was the lightest in years. The current season has opened with a good set of fruit and with no serious frost damage in the principal areas.

In the Pacific Northwest, the apple crop is expected to be larger than average though not so large as that produced last year. Oregon alone now expects a larger apple crop than produced last year. In that state the worm damage is reported as negligible as the result of a rigid and thorough spray program. Moisture conditions have been satisfactory. Idaho prospects point to a somewhat smaller crop than produced in 1931. Jonathans, which form the largest portion of the crop, set light. Delicious set heaviest, with Romes and Winesaps about next in order. The apple crop in Washington is indicated about six per cent under the 1931 crop. Growing conditions have been favorable. Spraying has been continuous, holding codling moth well under control. Thinning is in progress in some orchards and about finished in others. Efforts are being made to restrict the shipment of apples from this state to the better grades.

In California the apple crop has developed normally in all commercial areas during June and shows promise of a good crop. The exception is to be found in several mountain areas where frost damaged the set, leaving only a light crop, if any. Gravensteins are rapidly approaching maturity, a few early orchards already having been partially harvested.

### Peaches

The total production of peaches is indicated on July 1 at 47,216,000 bushels or about 38 per cent less than the bumper 1931 crop and about two per cent more than the production in 1929.

The peach crop in practically all sections east of the Rocky Mountains and south of Pennsylvania was hurt severely by the late spring freeze.

In New York, Michigan, New Jersey and Pennsylvania the peach crop is in relatively better condition than in other states in the east. The production on July 1 is indicated at close to an average crop in the four states; Michigan and Pennsylvania expect to have better than average crops, while New York and New Jersey expect less. In Illinois, Missouri, Kentucky, and Tennessee the peach crop is apparently close to a failure. Condition in these four states

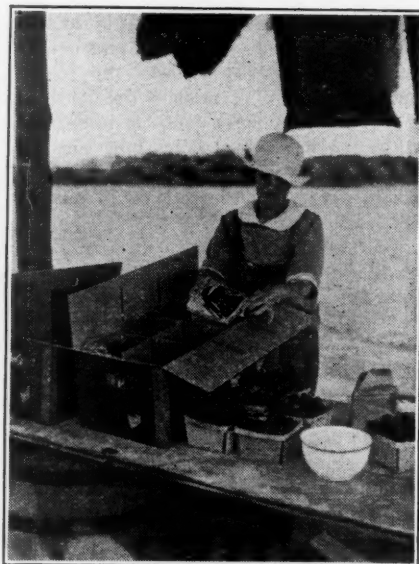
ranges from six per cent in Kentucky to nine per cent in Illinois.

The 10 southern states that ordinarily ship most of their crop by the middle of August now look for a total production of but 5,972,000 bushels or 73 per cent less than the large crop produced in 1931 and 35 per cent less than the crop produced in Georgia alone last year.

In the western states conditions are much better and the crop on July 1 is indicated as larger than last year or the average production in these states. California clingstones are forecast at 17,918,000 bushels or eight per cent larger than the crop produced in 1931. In 1931, 16,543,000 bushels of clingstones were produced, of which 8,480,000 bushels were harvested. Of the 8,063,000 bushels left unharvested 3,938,000 bushels were purchased but left on the trees. Freestones are indicated at 9,084,000 bushels on July 1, which is nearly 20 per cent more than the crop of 1931.

## Modern Packaging Results in Increased Returns

Foreseeing difficult market and price conditions in disposing of their strawberry crop, Long Island farmers modernized their packaging and merchandising. With the



Berries being packed in corrugated cases on the farm of Heinrich Meyjes at Calverton, Long Island, N. Y.

help of package engineers, a modern shipping unit was devised to replace the old-fashioned wooden strawberry crate. By dressing up their berries with transparent paper wrapping over each quart box and shipping in attractive green corrugated cases, they received top prices in the New York market.

A total of 2,627,526 barrels and 10,854,219 boxes of apples were exported from the United States in 1931. The total 50 years ago was 1,159,380 barrels.

## Control of Soil Erosion in Young Orchards

(From Page 4)

time. It is seeded in the fall at the rate of two to five pecks per acre and with a light application of barnyard manure or superphosphate fertilizer it will make very good growth on the thinnest of soil. It should be disked or plowed in the ground in early spring. *Land seeded to rye will wash very little during the winter or spring*, and the organic matter added by turning under the crop will add much to its mechanical condition and thus prevent erosion.

Cowpeas or soybeans are widely used as a green manure crop in our section. Virginia soybeans and any variety of cowpeas will do well on thin soils and add lots of organic matter to the soil as well as nitrogen. However, *land that has been seeded to either cowpeas or soybeans washes very badly during the winter*, therefore is objectionable on land that washes easily. By seeding these crops after the spring cultivation, followed either by rye or vetch for a winter crop, they may be used to an advantage if the cost of the two seedings is not unduly high.

If limestone is available, or if the soil is sweet, there is probably no crop that will add more organic matter and nitrogen to the soil than sweet clover. The clover is seeded in the spring or fall and allowed to reseed itself every two years. Although it adds large amounts of organic matter to the soil and aids in the prevention of erosion, the crop is often objectionable because it will compete with the trees for available moisture. Growers often seed the very steep hillsides and places that are apt to wash to sweet clover and use it as a permanent "ditch stopper." Red, or alsike clover, also may be used in this system of orchard management.

Probably more ditches and small gullies

may be stopped by broadcasting rye very thickly on all steep and low places through the orchard, than by any other method. No matter what crop it may be seeded with, rye will make a very rank growth of eight to ten inches on ordinary land when seeded early. Of course, soils which are covered with a heavy vegetation, such as this, will wash very little even though large amounts of water are passing over them.

Large ditches may be plowed shut during the summer and seeded to rye in early August with satisfactory results. One should go over the orchard every few weeks after the fall crop has been seeded and place straw in all the small ditches that have started. This may be put in four to six inches deep, and if weed seeds are not numerous, or there is no chaff in the straw, often it will pay to add a little rye so that when the seeds germinate they will grow up through the straw and hold it tightly to the ground. If this practice is followed until spring, one may rest assured he has done a good job of controlling erosion.

Any of the above combinations may be selected to fit your particular conditions. One should remember that these green manure crops are being grown not only for the invigorating effect they have on the trees but also for the organic matter they add to the soil. Heavy growths of vegetation, whether left on top of the ground or turned under, prevent the soil from being washed away. Soil fertility is valuable, and by exercising a little care and proper management hundreds of dollars' worth of plant food that is in many cases literally washed into the roadside ditches could be saved by the average fruit grower.

## Green Manuring in Orchard Practice

(From Page 5)

grown the latter should be chosen. It is necessary to maintain a good state of fertility to grow legumes satisfactorily, and their consistent failure may be taken as an indication of low fertility, though there are other reasons for failure. On poor soils it may become necessary to fertilize for the benefit of the cover crop as well as the trees.

The green manure crop serves as a winter cover to prevent soil erosion and leaching losses. The crop should be seeded in the fall as soon as danger from competition with the tree is past. Likewise, it should be plowed under or disked early in the spring to prevent competition for moisture and plant nutrients. A rank growing crop exhausts soil moisture rapidly. When the growth becomes too mature and woody it will not decay readily. Cover crops in California are worked in before the end of March.

Summer crops are sometimes grown for green manuring, but the practice is hardly

advisable. Few soils are fertile enough to support another crop while the trees are in active growth, even though moisture can be supplied abundantly. When a summer crop is produced, the growth should be carefully returned to the land for the benefit of the trees.

In the citrus section of California green manuring is very highly valued. The average of expenditure for orchard fertilizers is \$50 to \$75 per acre, yet organic matter and green manuring cannot safely be overlooked. Orchards under clean tillage have sometimes persistently declined to nothing in production even when commercial fertilizers were so liberally used. With green manuring annually in addition to the fertilization, the trees were gradually brought back to profitable production. As stable manure is more scarce and difficult to obtain, the practice of green manuring becomes very essential in maintaining profitably productive orchard soils.

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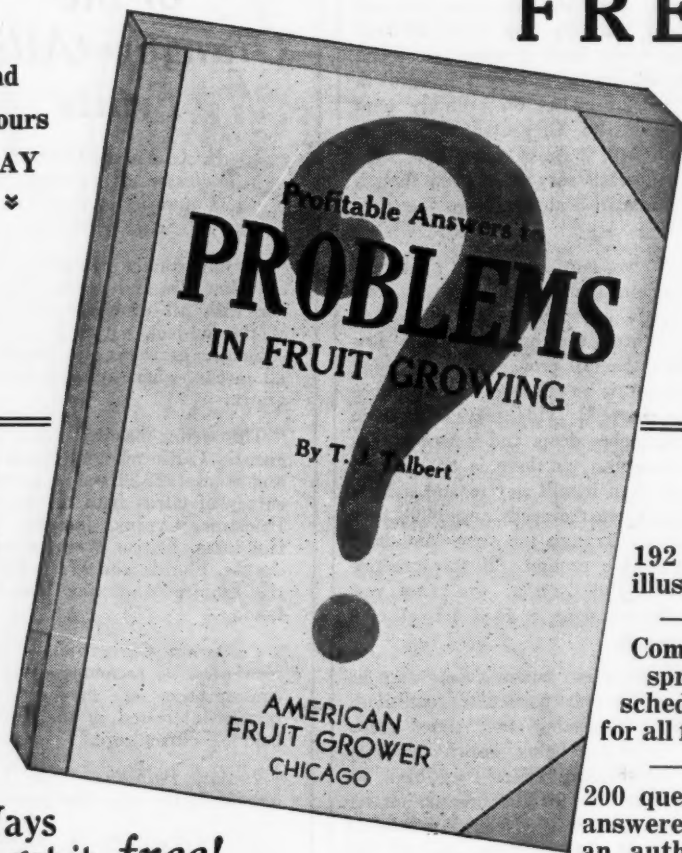
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